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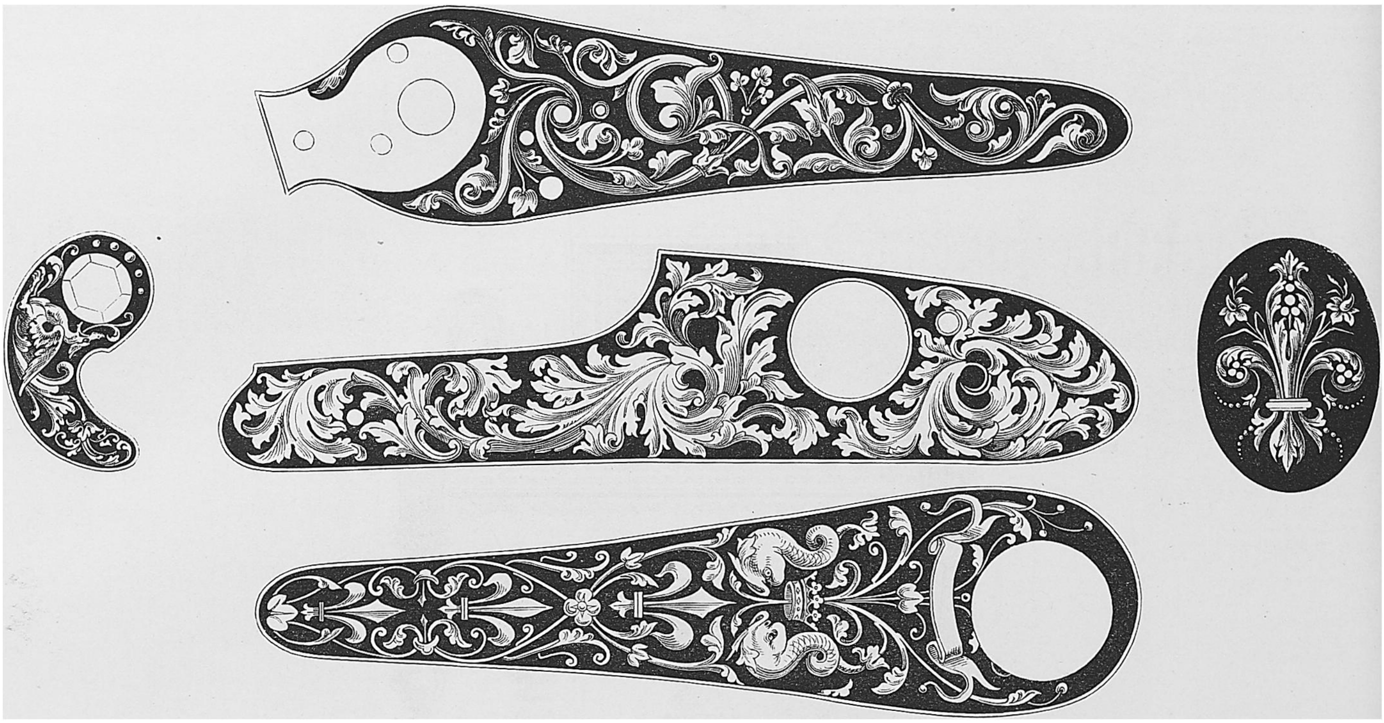

Nos. 29—33. Niello Decoration for Arms, designed by M. Tissot, Paris.

VARIOUS.

Vitrified Marble.

The material itself results from the admixture, and melting together in a furnace, of equal parts of certain vitreous and silicious substances in about equal proportions, to which are added, at a suitable stage and in the requisite quantities, such coloring materials as will produce the desired effects, either as a plain body color equally diffused throughout the mass, or in veins of one or more colors with or without ground. When in a semi-fluid state, while yet hot, small or large masses of this plastic matter are cut off and pressed into iron or steel moulds carefully formed to the desired shape. In this manner decorative objects of any size, shape, or appearance can be produced with the utmost facility and rapidity of execution.

The manner in which natural materials of all kinds can be imitatively reproduced is extraordinary; ordinary marbles, veined and other, porphyry and malachite, jade, lapis lazuli, etc., thus prepared are, if anything, more real than the genuine objects themselves, and have the advantage of being in forms that could only be obtained out of the originals with great labor, waste, and cost. They can also be obtained and applied in bulk and solid masses, as for vases, paper weights, inkstands, table tops, etc., or in minuter portions, such as pateræ and tesseræ, or amorphous pieces for mosaic work in every variety, suitable for dadoes, pavements, etc. For the latter purpose, the vitrified marble paving possesses an important advantage over marble and encaustic tiles, in relation to the surface, which is rougher and more safe and pleasant to tread upon, giving good foothold and equable wear, while lending itself to every pattern, regular or the reverse. And it is not only in respect of mere surface patterns, but also of raised designs and moulded forms of every species, that this material is susceptible of adaptation. Indeed, the sharpness of definition and accuracy of detail, of which it admits, are alike noteworthy.

It cannot, moreover, be said of this invention, as of so many others, that the fairness of its promise in conception is marred or belied in practical application. On the contrary, it is sufficient to say that the most eminent architects of the day have given their testimony, in evidence of its merits, by adopting it in leading works, which are alike monuments of their skill and of national objects. Mr. G. Gilbert Scott, for example, has made use of it largely in the bosses and gems for the decorative work of the Royal Albert Memorial in Hyde Park; and nearly 2,000 of these ornaments have been introduced therein, studding and decorating the work with equal brilliancy and effect. Jesse Rust, of 15 Coleman street, E. C., London, England, is the patentee of the above material. *Scientific American.*

Ammonia as a Motive Power.

This motive power (put to use by G. Bastianelli, of Florence) acts in the same manner as steam and is as easily controlled; requires but a small amount of steam to develop its immense force, the heat necessary for producing the pressure of ten atmospheres being limited to 134° to 142° Fahrenheit, and can now, it is said, be readily adapted to any machinery worked by steam, the new engine being quite simple in construction. The saving of fuel is nearly 70 per cent. The complicated copper boiler, with its 150 tubes, is entirely dispensed with. The ammonia acts in continuous rotation, as it at once condenses and returns into the boiler, the quantity escaping being scarcely observable, and requiring only annual replacement. In sea voyages the saving of 70 per cent. of fuel is naturally of paramount importance, as, besides reducing by two-thirds the daily expenses, it also allows of more space for freight. The inventor has laboured incessantly for twelve years in endeavouring to find out a practical mode of applying this new motive power. The machine exhibited in Paris at the International Exhibition was complicated and lumbering. The actual engine is said to be simple, and its advantages and expediency therefore obvious. The inventor has taken out a patent for Italy, and will insure to his invention the same privilege all over the civilized world.

The Builder.